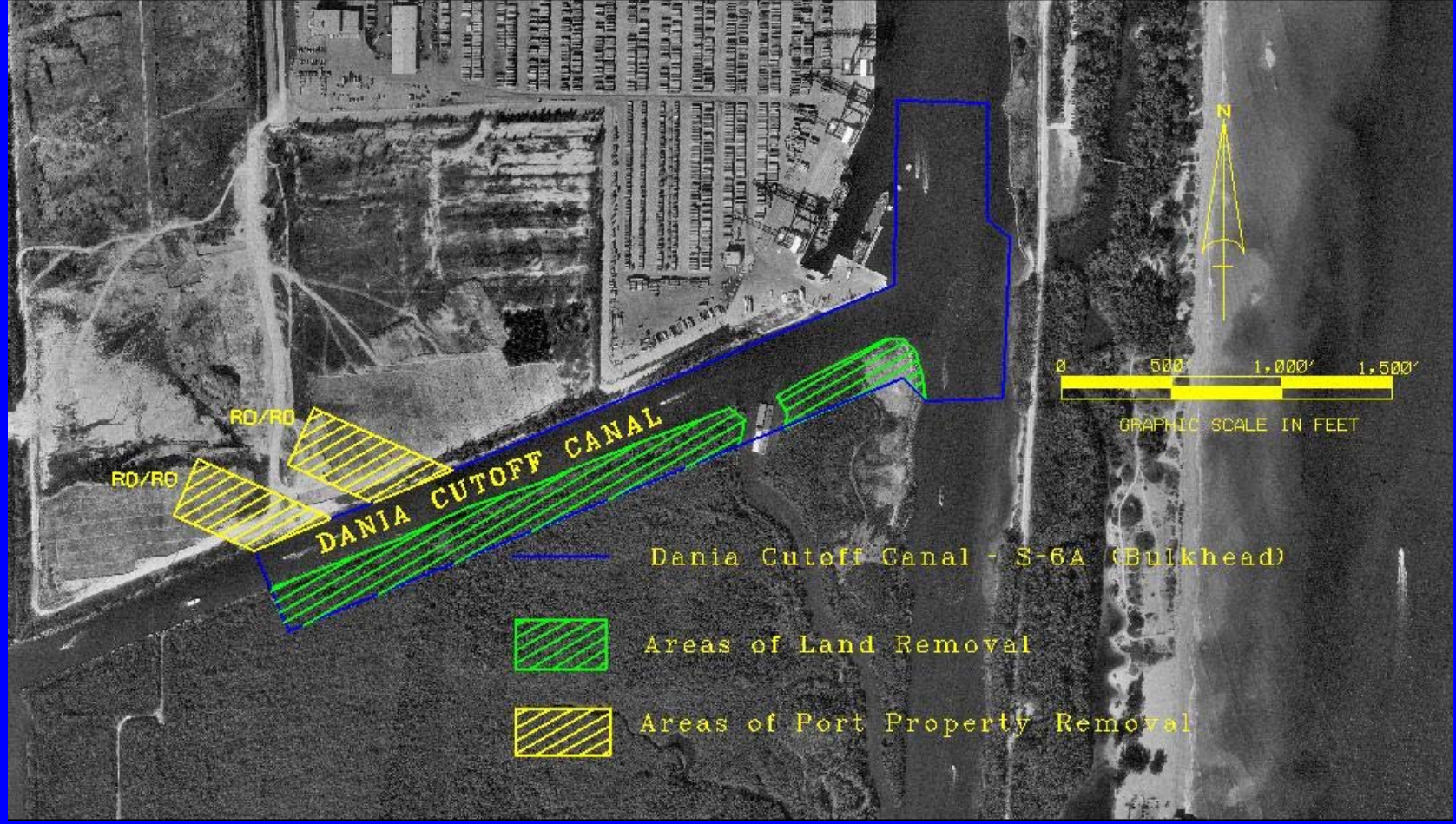
Plan S-5B

- Western widening and deepening of the SAC,
- sideslope on south side.
- Turning Basin at SAC.

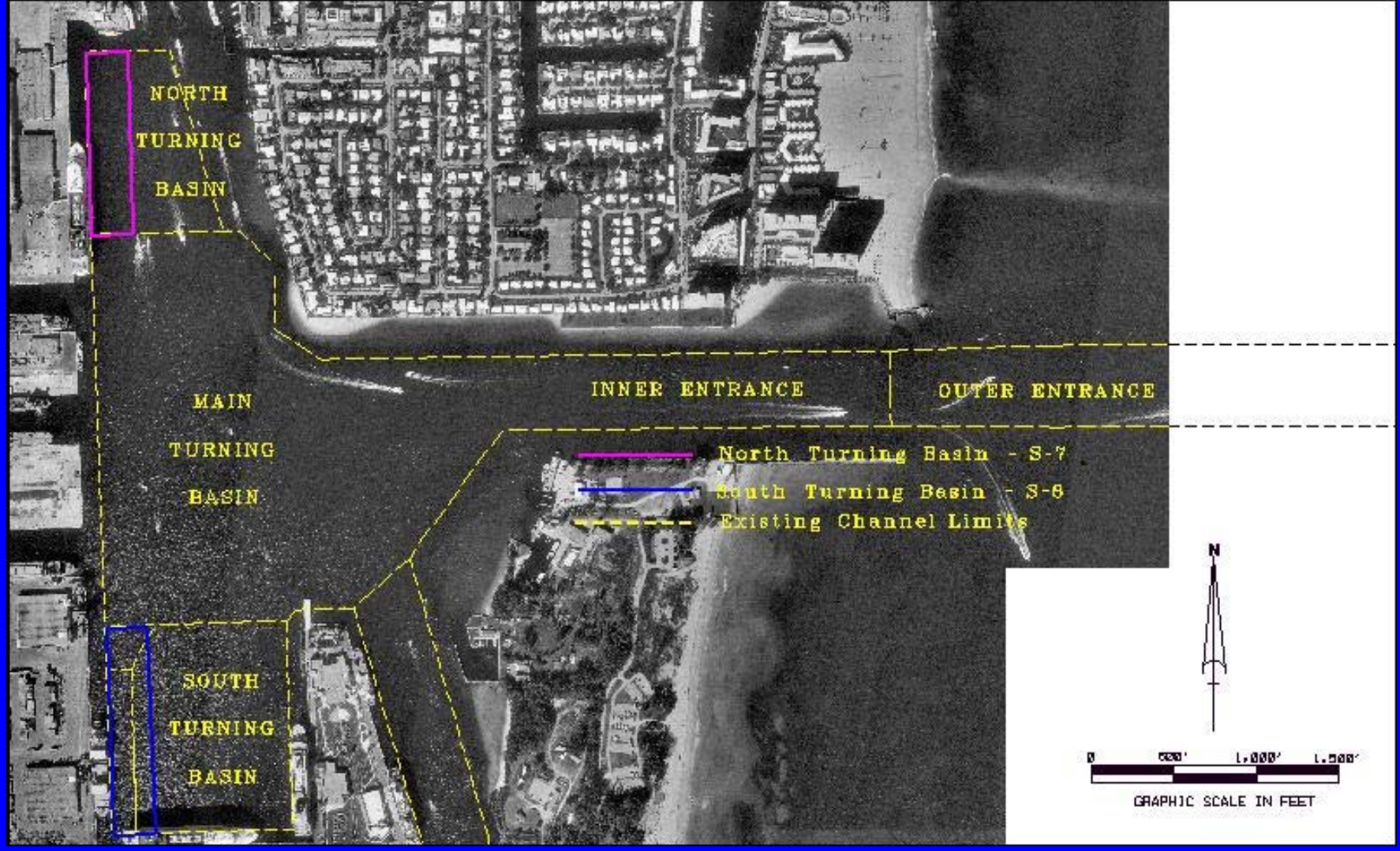


Plan S-6A

- Widening and deepening of the DCC,
- "Environmentally friendly" bulkhead along John U. Lloyd Park,
- Turning Basin at SAC.

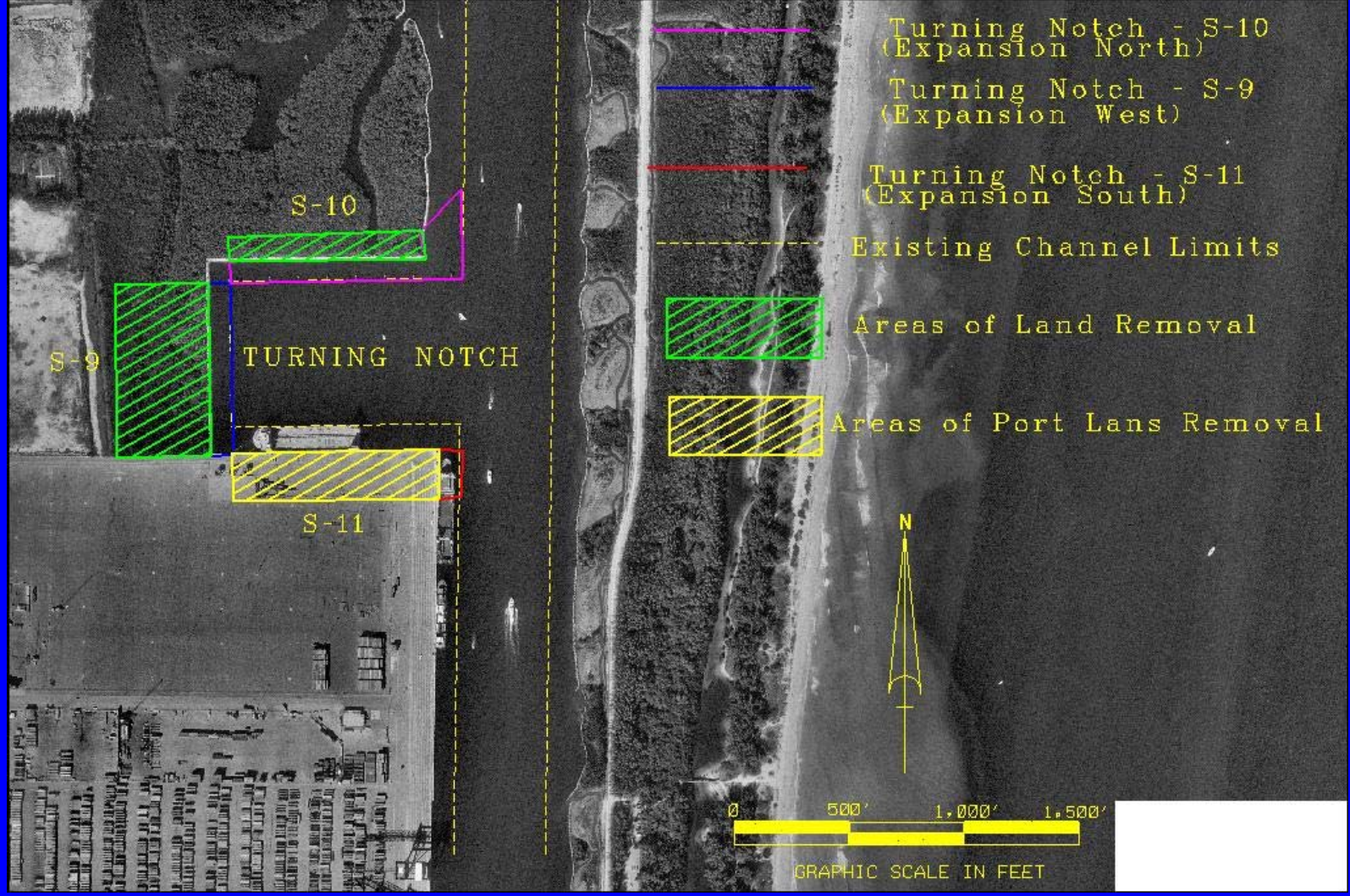
Plan S-6B

Widening and deepening of the DCC, Side slopes along John U. Lloyd Park. Turning Basin at SAC.



Plan S-7: Deepening the North Turning Basin.

Plan S-8: Deepening the South Turning Basin.



Plan S-9: Extending TN to the west and shaving northeast corner

Plan S-10: Extending TN to the north and shaving northeast corner

Plan S- 11: Extending TN to the south and shaving northeast corner

Engineering Analysis

- Design of Plans
- Cost Estimates
- Quantity Calculations
- Channel Width Optimization
- Efforts to minimize impacts to NOVA, Navy, USCG, State parks, Natural Areas
- Structural Design
- Geotechnical Analysis
- Numeric Modeling
- Maintenance Dredging Requirments
- Ship Simulation Modeling

Economic Analysis

- Characterize Economic conditions now and in future “without project” and “with project”
  - Review historical cargo movements and fleet utilization trends
  - Forecast future cargo movements and fleet utilization
  - Estimate transportation cost without and with the project , difference = benefits
- National Economic Development Benefits
  - Channel deepening Benefits - More efficient utilization of the fleet’s cargo capacity
  - Channel Widening & Extending Benefits - Vessel delay cost reduction savings – WAM, a “queuing” model

Channel Deepening Benefits

Container Ship	Length (ft)	Beam (ft)	Draft (ft)	Capacity per Foot of Draft		Total Added Capacity w/ Project	
				TEU's	Short Tons	TEU's	Short Tons
Panamax 4,400 TEU's	965	106	44	170	2,600	300	5,300
Post-Panamax Susan Maersk 7,200 TEU's built 1997 design vessel	1,139	141	48	250	3,900	1,800	27,000
Post-Panamax Not Named 9,600 TEU's built 2006	1,105	150	48	266	4,100	1,900	28,800

Channel Widening & Extending Benefits

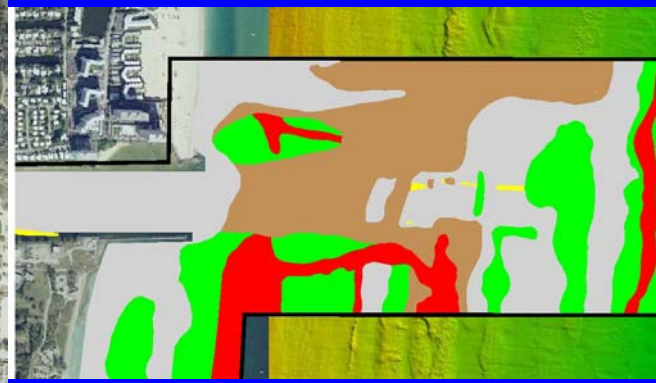
Measures – Results

- Remove Shoal area at the entrance to the Southport Access Channel (SAC)
  - Provides direct access to SAC for existing fleet.
- Remove Shoal area and widen SAC
  - Provides access to SAC for Post-Panamax container ships and two way traffic for small vessels
- Reconfigure Turning Notch
  - Allows berthing and turning of Post-Panamax container ships
- Extended Federal Channel to include Dania Cutoff Canal (DCC)
  - Shifts small general cargo ships from Midport, also allowing ships to turn at the entrance to the DCC.

For example

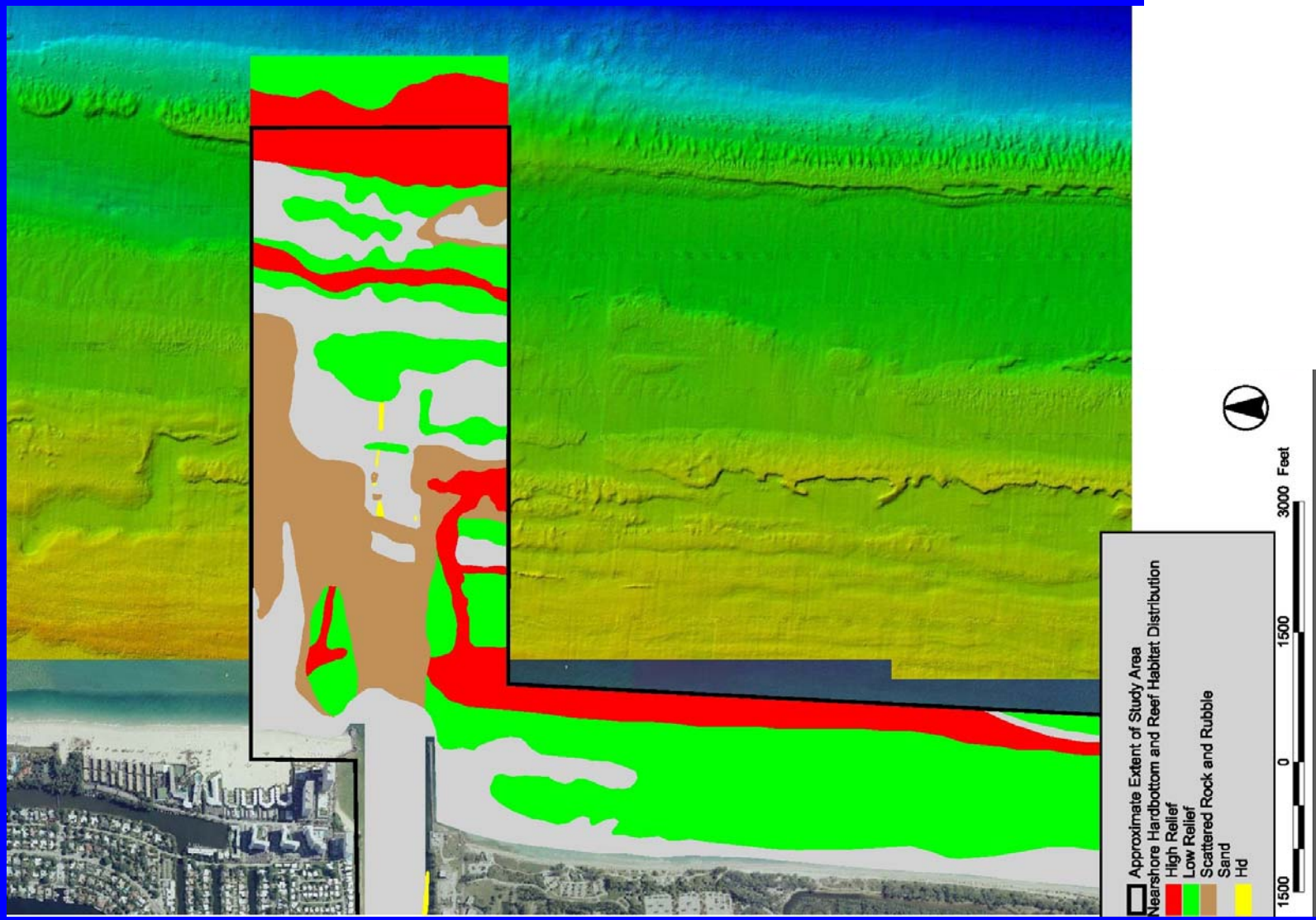
Widening the SAC results in delay reduction ranging from 0.9 hours to 3.5 hours per vessel.

Seagrasses in/near project area



Mangroves in/near project area

Hardground/Coral Reefs



Designated Essential Fish Habitat

Estuarine Areas (Dania Cut-Off Canal, ICW, Inner Entrance Channel	
	Estuarine shrub/scrub (mangroves)
	Seagrasses
	Intertidal flats
	Estuarine Water Column
Marine Areas (Outer Entrance Channel, Nearshore and Offshore Areas)	
	Live/Hardbottom
	Corals and Coral reef
	Artificial Reef
	Sargassum
	Water Column

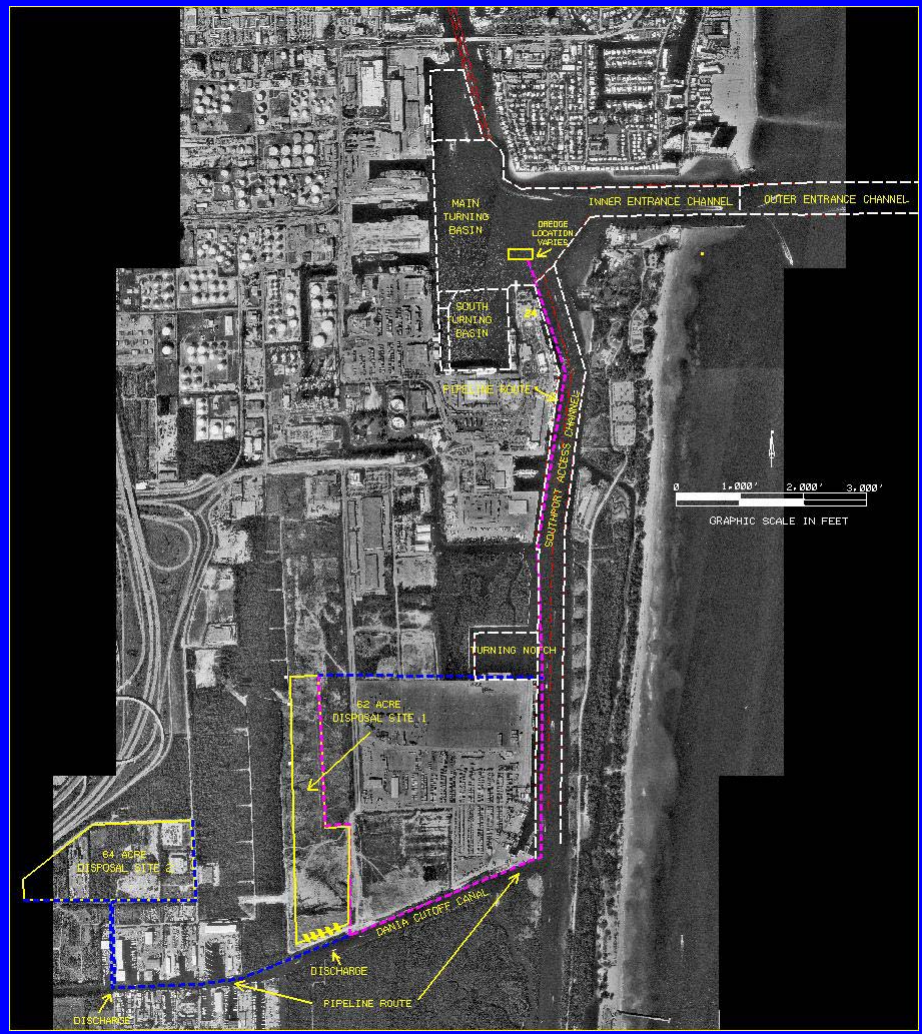
Source: South Atlantic Fisheries Management Council, 1998

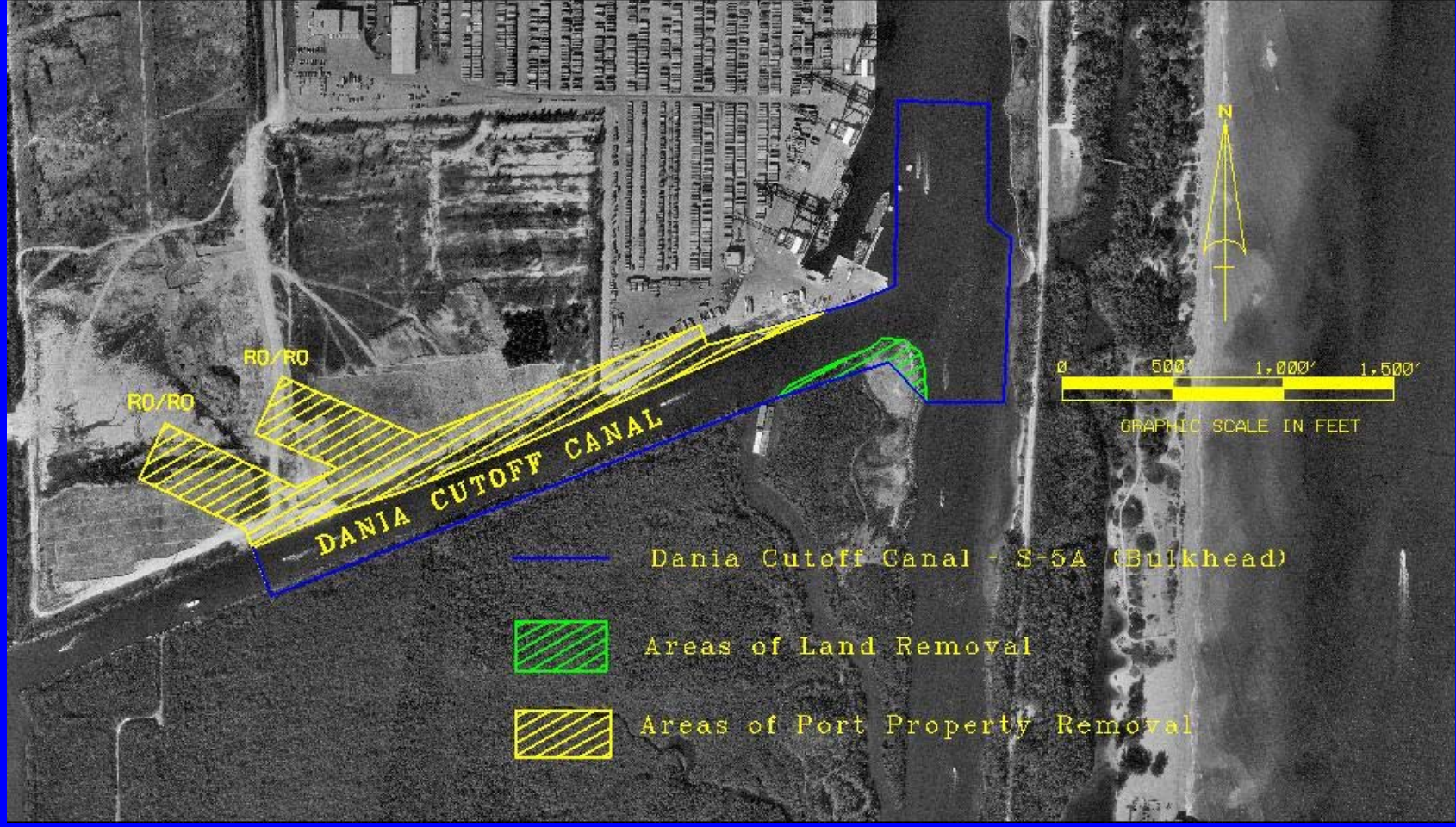
Federally Protected, Threatened & Endangered Species

- Endangered Florida manatee
  - Powerplant known aggregation site (Nov-Mar)
- Endangered & Threatened Sea Turtles
- Endangered Sawfish
- Threatened Johnson's seagrass
- Protected bottlenose dolphins

Dredged Material Disposal Alternatives

- Offshore Disposal Site (Online – Feb 2005)
  - SMMP
- Upland Disposal (2 sites)
- Art. Reef Construction





Plan S-5A

- Western widening and deepening of the SAC,
- "Environmentally friendly" bulkhead on south side.
- Turning Basin at SAC.